



1. (Bachelors Hons. Emergency & Intensive Care, MSPH)  
Lecturer/Research Officer,  
Department of Public Health,  
Armed Forces Post Graduate  
Medical Institute, Rawalpindi.
2. (BS Hons. Bio Sciences, MSPH)  
Lecturer/Research Officer,  
Department of Public Health,  
Armed Forces Post Graduate  
Medical Institute, Rawalpindi
3. (Bachelors Hons. Emergency & Intensive Care, MSPH)  
Lecturer/Research Officer,  
Department of Public Health,  
Armed Forces Post Graduate  
Medical Institute, Rawalpindi
4. (MBBS, MCPS Family Medicine,  
FCPS Community Medicine)  
Associate Professor,  
Department of Public Health,  
Armed Forces Post Graduate  
Medical Institute, Rawalpindi
5. (MBBS, MPH)  
Assistant Professor,  
Department of Public Health,  
Armed Forces Post Graduate  
Medical Institute, Rawalpindi
6. (Bachelors Hons. MSPH)  
Ch. Pervaiz Ellahi Institute of  
Cardiology Multan.

**Correspondence Address:**  
Farman Ali  
Address. Room No. 417  
Qasim Hall Boys Hostel  
Nishtar Hospital Multan.  
Email. farmiali@hotmail.com

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## INTRODUCTION

Daily requirement of 400 micrograms of folic acid is recommended for good health and prevention from neural tube and congenital defects. Women of childbearing age, whether they are teenagers or adults, must know the importance of folic acid intake and their perceptions play a vital role in this practice. Role of healthcare providers is also of prime importance in making women aware of the health benefits related to folic acid intake.

Sensitization and knowledge levels were intensively studied in women of childbearing age in order to explain the low prevalence of folic acid intake with variable results in different countries. Low folic acid intake, different interventions on folic

## FOLIC ACID INTAKE; ROLE OF HEALTHCARE PROVIDERS IN COUNSELING AND PERCEPTIONS OF WOMEN ABOUT IMPORTANCE OF FOLIC ACID INTAKE IN CHILDBEARING AGE

**Aamira Hashmi<sup>1</sup>, Qandeel Tahir<sup>2</sup>, Muhammad Imran<sup>3</sup>, Naila Azam<sup>4</sup>, Rukhsana Roshan<sup>5</sup>, Farman Ali<sup>6</sup>**

**ABSTRACT... Objectives:** Study objectives were devised to assess perceptions of women regarding importance of folic acid intake, to evaluate role of healthcare providers in counseling of women for folic acid intake, to find out association between perceptions of women with folic acid intake practices and with counseling of healthcare providers. **Study Design:** A cross sectional survey. **Setting:** Gynecology and Obstetrics Wards and OPDs of Tertiary Care and Teaching Hospitals of District Rawalpindi. **Period:** July-December 2016. **Methodology:** Study participants were approached by using convenient sampling technique and sample size was of 271 women of reproductive age. attending gynecology and obstetrics wards and OPDs of tertiary care and teaching hospitals of district Rawalpindi. After obtaining consent from institutional review board, an interview-based questionnaire was used as data collection tool. **Results:** Out of 271 women of childbearing age, 60% perceived the importance of folic acid intake in diet. The highest counseling contribution was from doctors (57.6%) while evaluation of role of healthcare providers was done regarding counseling. Those who had perceived importance of folic acid had a significant better intake ( $p = 0.03$ ). There was a significant association between role of healthcare providers and perceptions ( $p = 0.02$ ). **Conclusion:** Majority of women perceived importance of folic acid intake and doctors were playing a significant role in counseling of women regarding folic acid intake during pregnancy. Folic acid intake practices were significantly influenced by women's own perceptions and role of healthcare providers was a very important factor to direct perceptions of women.

**Key words:** Folic Acid Intake, Perceptions of Women, Role of Healthcare Providers.

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acid intake increase women's awareness from 60% to 72% and knowledge from 21% to 45%. At the same time, the folic acid intake increased only from 14% to 23%, showing a positive but suboptimal effect.<sup>1</sup> Changes in knowledge and awareness alone cannot be assumed to result in behavioral changes.<sup>2</sup>

Nevertheless, educational campaigns can be effective. A US study found that women aged 18 to 45 were attending a 15-minute computer-aided education session. The proportion of women who understood that folate can prevent birth defects rose from 26% in advance to 92% after the campaign. In general, the knowledge of women about the role of folic acid in the prevention of birth

defects and on food and supplementary sources of folic acid improved according to campaigns, but women were less likely to understand the importance of taking folic acid before conception.<sup>3</sup>

Educational campaigns with different modes of communication were used to improve folic acid intake before and during pregnancy, but its effects appear to be variable.<sup>4-6</sup> While many women of reproductive age worldwide may be aware of the potential benefits of folic acid during pregnancy<sup>7</sup>, compliance with the recommendations remains low.<sup>8-11</sup> In the United States, the CDC and the March of Dimes have organized campaigns to educate both the public and health experts about the need for daily consumption of folic acid supplements by all women of childbearing age while healthcare professionals can play important role in advising women on folic acid<sup>12</sup>, they often fail to do so.<sup>7,13</sup>

Another strategy is public health campaigns, which point to behavioral changes in all individuals, not just the searcher.<sup>14</sup> Official health education initiatives have fostered folic acid supplementation and a rich diet with folic acid.<sup>15</sup> Campaigns range from media communications and information to products and products discount coupons to enable improved labeling and in-store displays to promote food sources for folic acid.

Health education and promotion strategies may play important role for the improvement of folic acid intake and perceptions of childbearing women. To reduce the burden of congenital diseases those are linked with folic acid through awareness campaigns and counseling by the healthcare professionals. All this can be done easily by the healthcare working to the patients attending at OPDs and wards in the department of gynecology and obstetrics.

## OBJECTIVES

Study objectives were devised to assess perceptions of women regarding importance of folic acid intake, to evaluate role of healthcare providers in counseling of women for folic acid intake, to find out association between perceptions

of women with folic acid intake practices and with counseling of healthcare providers.

## METHODOLOGY

A cross sectional survey was conducted from July-December 2016. Study participants were approached by using consecutive sampling technique. Gynae, Family and Emergency OPD were fixed as study settings and sample size of 271 women of reproductive age residing in Rawalpindi district were approached. Pilot study was conducted and questionnaire modification was done to cater for more clear and pertinent response leading to achievement of designed objectives. Study objectives were devised to assess perceptions of women regarding importance of folic acid intake, to evaluate role of healthcare providers in counseling of women for folic acid intake, to find out association between perceptions of women with folic acid intake practices and with counseling of healthcare providers as well. After obtaining consent from institutional review board and respondents, data collection was started using an interview-based questionnaire. SPSS version 21 was used for data analysis. Analysis was of two main parts that are descriptive and inferential analysis. In descriptive part, results were in the form of frequency and percentage and in inferential part, association was checked among dependent and independent variables.

## RESULTS

A total of 271 women in child bearing age were included in the study. Of the 271 respondents, the highest percentage (58.3%) of women was in age category 24-32 years. Majority of the respondents (56.1%) in the study had education above matriculation level. Seventy one percent of respondents (193/271) were not having any previous medical condition. Fifty nine percent (159/271) of respondents had heard about folic acid intake. Detailed information on Socio-demographic profile and information about folic acid intake is shown below in Table-I.

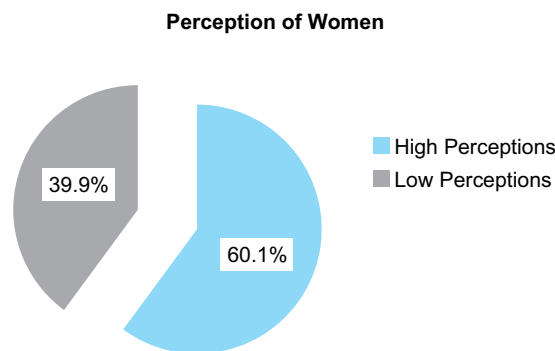
Socio-Demographic Profile	
Variables	Frequency (%)
Age	
15-23 yrs	19 (7%)
24-32 yrs	158 (58.3%)
33-41 yrs	66 (24.4%)
>41 yrs	28 (10.3%)
No of Children	
No child	66 (22.1%)
1-3	165 (60.9%)
4-6	43 (15.9%)
>7	3 (1.1%)
No of Pregnancies	
No pregnancy	54 (19.9%)
1-3	161 (59.4%)
4-6	42 (15.5%)
>7	14 (5.2%)
Frequent mode of Delivery	
None	62 (22.9)
Normal delivery	133 (49.1)
C-section	75 (27.7%)
Occupation	
Employed	108 (39.9%)
Unemployed	163 (60.1%)
Residence	
Rawalpindi/Islamabad	179 (66.1%)
Other	92 (33.9%)
House hold expenditure	
< 20,000	100 (36.9%)
20,000-40,000	84 (31%)
>40,000	87 (32.1%)
Background Information About Folic Acid Intake	
Knowledge about Folic acid intake	
Yes	159 (58.7%)
No	112 (41.3%)
Source of Information	
Doctor	156 (57.6%)
Nurse	52 (19.2%)
Doctor/nurse	16 (5.9%)
CHW/CMW/Others	47 (17.3%)
Counseling for Folic acid intake	
Yes	186 (68.6%)
No	85 (31.4%)
Take Folic acid only in Pregnancy	
Yes	208 (76.8%)
No	63 (23.2%)
Take Folic acid rich food	
Yes	150 (55.4%)
No	121 (44.6%)

**Table-I. Socio-demographic profile and background information**

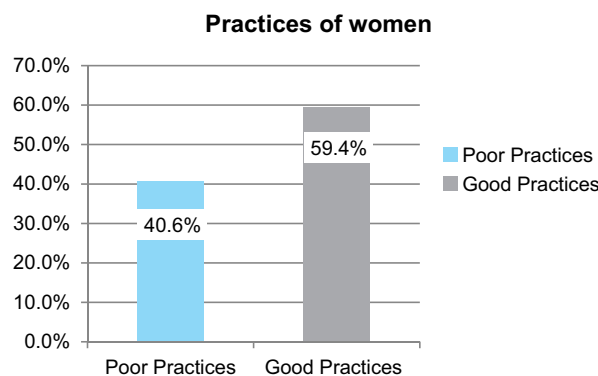
**Perceptions of Women About Folic Acid Intake**

Seventy nine percent (215/271) of the respondents reported that folic acid is beneficial for mother and child. Seventy one percent (192/271) respondents agreed to the statement

that folic acid should be taken in the first trimester only. Eighty percent (218/271) respondents knew that folic acid tablets are yellow colored and sixty eight percent (185/271) respondents agreed folic acid should also be taken prior to pregnancy. Seventy one percent (192/271) respondents were aware about the fact that green leafy vegetables are rich source of folic acid. Seventy six percent respondents agreed to the statement that over cooking vegetables reduces their nutritional value. Majority of respondents agreed that folic acid deficiency during pregnancy causes abnormalities in new born babies. Detailed results of perception of women are listed below in Table-II.



**Figure-1. Perception of women regarding folic acid intake**



**Figure-2. Practices regarding folic acid intake**

A chi-square test was carried out to find the association of counseling provided by healthcare providers and folic acid intake practice. Table-III below shows that respondents who received counseling from doctors perceived a higher need for intake of folic acid during child bearing age than respondents who received counseling

from other sources. There was a significant association between role of healthcare providers and perception of women ( $p=0.02$ ). Similarly,

respondents who perceived importance of folic acid intake had a significant better folic acid intake ( $p=0.03$ ), details given in Table-III.

Variables		Response		
		Agree	Neutral	Disagree
1	Folic acid intake beneficial for mother and child	215 (79.3%)	42 (15.5%)	14 (5.2%)
2	Intake important during 1 <sup>st</sup> trimester	192 (70.8%)	49 (18.1%)	30 (11.1%)
3	Yellow colored tablets	218 (80.4%)	47 (17.3%)	6 (2.2%)
4	Taken prior to pregnancy	185 (68.3%)	72 (26.6%)	14 (5.2%)
5	Green leafy vegetables a rich source	192 (70.8%)	61 (22.5%)	18 (6.6%)
6	Excessive cooking reduces nutritional value	205 (75.6%)	45 (16.6%)	21 (7.7%)
7	Deficiency (abnormalities)	198 (73.1%)	41 (15.1%)	32 (11.8%)
8	Taken on specific time	142 (52.4%)	85 (31.4%)	44 (16.2%)
9	Not required, present in food	93 (34.3%)	69 (25.5%)	109 (40.2%)

**Table-II. Perception of women regarding folic acid intake**

Independent Variables		Perception of Women		Chi-Square Results
		High Perceptions	Low Perceptions	
1	Folic acid Intake (Yes)	118(56.7%)	90 (43.3%)	$\chi^2=4.35$ , $df=1$ , $p=0.037$
	Folic acid Intake (No)	45(71.4%)	18 (28.6%)	
2	Counseling by Doctors	82(52.6%)	74 (47.7%)	$\chi^2=9.83$ , $df=2$ , $p=0.007$
	Counseling by Nurses	34(65.4%)	18 (34.6%)	
	Counseling by LHWs, CMWs and others	47(74.6%)	16 (25.4%)	

**Table-III. Association between perception of women; folic acid intake and counseling practices**

**DISCUSSION**

This cross sectional study highlights the importance of folic acid intake, counseling practices and perception of women regarding folic acid intake during child bearing age. Knowledge and practices regarding the importance and intake of folic acid was reported good by majority of the respondents.

Knowledge regarding the importance of folic acid was reported good by 159 (58.7%) of respondents. Results of this study matched with a study done in Rawalpindi where 172 (43%) of respondents showed awareness regarding the need for folic acid in pregnancy.<sup>16</sup> In the present study, improvement was seen in the knowledge of participants regarding importance of folic acid intake; the possible reason behind this could be the improvement in counseling practices.

Highlighting the importance of folic acid during child bearing age, majority of the respondents (73.1%) in present study agreed to the fact that deficiency of folic acid causes abnormalities in new born babies, on the contrary previous

studies done in same settings showed that 161 (40.25%) of respondents thought folic acid deficiency in pregnancy results in newborn abnormalities while only 34.5% of respondents from the previous study showed interest in going to awareness campaigns.<sup>16</sup> The uninterested participants therefore showed a negative attitude while our study highlighted the importance of awareness campaigns and counseling practices and a significant association is observed between perceptions of women and counseling received by respondents. In the present study, respondents who had received counseling from doctors’ perceived higher need for intake of folic acid during child bearing age as compared to respondent who had been counseled by nurses or other staff ( $p=0.02$ ).

In the present study practices regarding folic acid intake were reported good by 59.4% of respondents. A study done in similar setting showing poor practices of respondents (43%) regarding intake of folic acid rich foods, on other hand 51.25% had received folic acid supplementation during pregnancy.<sup>16</sup> In the

present study, 55.4% respondents reported that they were taking folic acid rich foods, 76.8% respondents reported that they were taking folic acid supplementation during pregnancy, this significant improvement in the practices of women shows that counseling done by doctors is playing a significant role in improving the folic acid intake. The previous study done by Aliya in 2014 highlighted the importance of continuous education and motivation towards this basic micronutrient intake. Folic acid intake is important before conception and during first trimester to avoid congenital defects in newborns. Studies show that pre-conceptional supplementation of folic acid prevents considerable fraction of neural tube defects<sup>17,18</sup> and this message needs to be communicated to women.

In the present study it was reported that 57.6% of the respondents received counseling regarding folic acid intake from doctors, 19.2% respondents received counseling and advice from nurses and 17.3% respondents received counseling from CHW, LHW and CMW. Studies have shown that community pharmacist can also help in providing counseling and can play a vital public health role. In a study done by Rodrigues; Ninety five percent of pharmacists reported that folic acid prevents certain birth defects. Twenty nine percent pharmacists reported that they “always” or “mostly” discuss importance of multivitamins with customers.<sup>19</sup>

Studies have also shown that higher literacy levels lead to greater improvements in lifestyles. People who are educated are more aware and knowledgeable than people who have a lower literacy level. A study done by Aliya in Rawalpindi emphasized that the fact that increasing literacy levels along with awareness campaigns, media education, counseling done by healthcare professionals plays a vital role in highlighting the importance of preventive measures.<sup>16</sup>

## CONCLUSION

Majority of women perceived importance of folic acid intake and doctors were playing a significant role in counseling of women regarding folic acid during pregnancy. Folic acid intake practices

were significantly influenced by women’s own perceptions and role of healthcare providers was a very important factor to direct perceptions of women.

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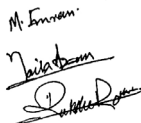





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*The greatest prison that people live in is the fear of what other people think.*  
 – David Icke –  
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**AUTHORSHIP AND CONTRIBUTION DECLARATION**

Sr. #	Author-s Full Name	Contribution to the paper	Author=s Signature
1	Aamira Hashmi	Concieve idea, Design study.	
2	Qandeel Tahir	Manuscript Writing.	
3	Muhammad Imran	Data Collection.	
4	Naila Azam	Data Analysis.	
5	Rukhsana Roshan	Manuscript Writing.	
6	Farman Ali	Proof Reading.	